

$\Delta(1750) 1/2^+$

$$I(J^P) = \frac{3}{2}(\frac{1}{2}^+) \text{ Status: } *$$

OMITTED FROM SUMMARY TABLE

Neither ARNDT 06 nor ANISOVICH 12A finds any evidence for this resonance.

NODE=B145

NODE=B145

 $\Delta(1750)$ BREIT-WIGNER MASS

NODE=B145M

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
≈ 1750 OUR ESTIMATE			
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
1712 \pm 1	PENNER	02C	DPWA Multichannel
1721 \pm 61	VRANA	00	DPWA Multichannel
1744 \pm 36	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
1715.2 \pm 21.0	¹ CHEW	80	BPWA $\pi^+ p \rightarrow \pi^+ p$
1778.4 \pm 9.0	¹ CHEW	80	BPWA $\pi^+ p \rightarrow \pi^+ p$

NODE=B145M

→ UNCHECKED ←

OCCUR=2

 $\Delta(1750)$ BREIT-WIGNER WIDTH

NODE=B145W

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
643 \pm 17	PENNER	02C	DPWA Multichannel
70 \pm 50	VRANA	00	DPWA Multichannel
300 \pm 120	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
93.3 \pm 55.0	¹ CHEW	80	BPWA $\pi^+ p \rightarrow \pi^+ p$
23.0 \pm 29.0	¹ CHEW	80	BPWA $\pi^+ p \rightarrow \pi^+ p$

NODE=B145W

OCCUR=2

 $\Delta(1750)$ POLE POSITION

NODE=B145230

REAL PART

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1748	² ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
1714	VRANA	00	DPWA Multichannel

NODE=B145RE
NODE=B145RE**-2×IMAGINARY PART**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
524	² ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
68	VRANA	00	DPWA Multichannel

NODE=B145IM
NODE=B145IM **$\Delta(1750)$ ELASTIC POLE RESIDUE**

NODE=B145235

MODULUS $|r|$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
48	² ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$

NODE=B145RER
NODE=B145RER**PHASE θ**

VALUE (°)	DOCUMENT ID	TECN	COMMENT
158	² ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$

NODE=B145IMR
NODE=B145IMR **$\Delta(1750)$ DECAY MODES**

NODE=B145215;NODE=B145

Mode
Γ_1 $N\pi$
Γ_2 $N\pi\pi$
Γ_3 $N(1440)\pi$
Γ_4 ΣK

DESIG=1

DESIG=2

DESIG=3

DESIG=4

$\Delta(1750)$ BRANCHING RATIOS

NODE=B145220

$\Gamma(N\pi)/\Gamma_{\text{total}}$					Γ_1/Γ
VALUE (%)	DOCUMENT ID	TECN	COMMENT		
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1 ± 1	PENNER	02C	DPWA	Multichannel	
6 ± 9	VRANA	00	DPWA	Multichannel	
8 ± 3	MANLEY	92	IPWA	$\pi N \rightarrow \pi N \& N\pi\pi$	
18	¹ CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$	
20	¹ CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$	OCCUR=2

NODE=B145R1
NODE=B145R1

$(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow \Delta(1700) \rightarrow N(1440)\pi$					$(\Gamma_1 \Gamma_3)^{1/2}/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT		
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
+0.15 ± 0.03	MANLEY	92	IPWA	$\pi N \rightarrow \pi N \& N\pi\pi$	

NODE=B145R2
NODE=B145R2

$\Gamma(N(1440)\pi)/\Gamma_{\text{total}}$					Γ_3/Γ
VALUE (%)	DOCUMENT ID	TECN	COMMENT		
83 ± 1	VRANA	00	DPWA	Multichannel	

NODE=B145R3
NODE=B145R3

$\Gamma(\Sigma K)/\Gamma_{\text{total}}$					Γ_4/Γ
VALUE (%)	DOCUMENT ID	TECN	COMMENT		
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
0.1 ± 0.1	PENNER	02C	DPWA	Multichannel	

NODE=B145R4
NODE=B145R4 **$\Delta(1750)$ PHOTON DECAY AMPLITUDES**

NODE=B145225

Papers on γN amplitudes predating 1981 may be found in our 2006 edition, Journal of Physics, G **33** 1 (2006).

NODE=B145225

 $\Delta(1750) \rightarrow N\gamma$, helicity-1/2 amplitude $A_{1/2}$

VALUE ($\text{GeV}^{-1/2}$)	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
0.053	PENNER	02D	DPWA Multichannel

NODE=B145A1
NODE=B145A1 **$\Delta(1750)$ FOOTNOTES**

NODE=B145

¹ CHEW 80 reports four resonances in the P_{31} wave — see also the $\Delta(1910)$. Problems with this analysis are discussed in section 2.1.11 of HOEHLER 83.

NODE=B145;LINKAGE=C

² ARNDT 04 gives no corresponding Breit-Wigner parameters for this state, because the mass so obtained is about 500 MeV higher than that suggested by the position of the pole.

NODE=B145;LINKAGE=AR

 $\Delta(1750)$ REFERENCES

NODE=B145

ANISOVICH	12A	EPJ A48 15	A.V. Anisovich <i>et al.</i>	(BONN, PNPI)	REFID=54041
ARNDT	06	PR C74 045205	R.A. Arndt <i>et al.</i>	(GWU)	REFID=51535
PDG	06	JPG 33 1	W.-M. Yao <i>et al.</i>	(PDG Collab.)	REFID=51004
ARNDT	04	PR C69 035213	R.A. Arndt <i>et al.</i>	(GWU, TRIU)	REFID=49947
PENNER	02C	PR C66 055211	G. Penner, U. Mosel	(GIES)	REFID=49129
PENNER	02D	PR C66 055212	G. Penner, U. Mosel	(GIES)	REFID=49130
VRANA	00	PRPL 328 181	T.P. Vrana, S.A. Dytman,, T.-S.H. Lee	(PITT+)	REFID=47593
MANLEY	92	PR D45 4002	D.M. Manley, E.M. Saleski	(KSA)	REFID=41535
Also		PR D30 904	D.M. Manley <i>et al.</i>	(VPI)	REFID=30071
HOEHLER	83	Landolt-Boernstein 1/9B2	G. Hohler	(KARLT)	REFID=31158
CHEW	80	Toronto Conf. 123	D.M. Chew	(LBL)	REFID=31151